

CLAIMS:

Claim 1 (previously presented): Method for producing titanium composite parts, by means of casting, which comprises the following operational stages:

- obtaining a titanium composite reinforcement material;
- obtaining a non-reinforced consumable ingot of titanium or titanium alloy;
- simultaneous melting the reinforcement material and the consumable ingot; and
- casting the melted composite in a corresponding mould in order to produce a composite piece in its final shape and dimensions.

Claim 2 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material is obtained by means of the self-propagated high-temperature synthesis method.

Claim 3 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material is a composite with titanium borides and/or carbides distributed in a titanium or titanium alloy matrix.

Claim 4 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the titanium composite which constitutes the reinforcement material has between 30-70% by weight of titanium boride and/or carbide, dispersed in titanium or titanium alloy.

Claim 5 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the consumable ingot is of titanium or titanium alloy.

Claim 6 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the consumable ingot is a cp-Ti grade 1, cp-Ti grade 2, cp-Ti grade 3, cp-Ti grade 4, Ti-0.05Pd, Ti-6Al-4V, Ti-5Al-2.5Fe, Ti-5Al-2.5Se, Ti-6Al-2Sn-4Zr-2Mo-0.1Si, Ti-5.8Al-4Sn-3.5Zr-0.5Mo-0.7Nb-0.35Si-0.06C, Ti3Al, Ti-14Al-11Nb, Ti2AlNb, g TiAl, or Ti(22-23)Al-(25-26)Nb(at%) alloy.

Claim 7 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united prior to melting by a welding procedure.

Claim 8 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or be divided up, and the consumable ingot are united prior to melting by mechanical means.

Claim 9 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the reinforcement material, which may be a single piece or be divided up, is inserted in one or more holes made in the consumable ingot.

Claim 10 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the melting is done by the vacuum electric arc and/or vacuum induction melting method.

Claim 11 (previously presented): Method for producing titanium composite parts, by means of casting, according to claim 1, characterised in that the casting in moulds is done by means of a centrifuging or gravity filling process.

Claim 12 (withdrawn): A titanium composite part produced by the method of claim 1 and characterised in that it is produced by casting starting from a titanium composite reinforcement material and a non-reinforced consumable ingot of titanium or titanium alloy.

Claim 13 (withdrawn): A titanium composite part, according to claim 12, characterised in that the reinforcement material is a composite with titanium borides and/or carbides, dispersed in titanium or titanium alloy.

Claim 14 (withdrawn): A titanium composite part, according to claim 12, characterised in that it has a percentage of titanium boride and/or carbide above 0% and below 70% by weight, dispersed in titanium or titanium alloy.

Claim 15 (withdrawn): A titanium composite part, according to claim 12, characterised in that the reinforcement material is obtained by means of the self-propagated high-temperature synthesis technique.

Claim 16 (withdrawn): A titanium composite part, according to claim 12, characterised in that the titanium composite which constitutes the reinforcement material has 30-70% by weight of titanium boride and/or carbide, dispersed in titanium or titanium alloy.

Claim 17 (withdrawn): A titanium composite part, according to claim 12,

characterised in that the consumable ingot is of titanium or titanium alloy.

Claim 18 (withdrawn): A titanium composite part, according to claim 12, characterised in that the consumable ingot is a cp-Ti grade 1, cp-Ti grade 2, cp-Ti grade 3, cp-Ti grade 4, Ti-0.05Pd, Ti-6Al-4V, Ti-5Al-2.5Fe, Ti-5Al-2.5Sn, Ti-6Al-2Sn-4Zr-2Mo-0.1Si, Ti-5.8Al-4Sn-3.5Zr-0.5Mo-0.7Nb-0.35Si-0.06C, Ti3Al, Ti-14Al-11Nb, Ti2AlNb, g TiAl, or Ti(22-23)Al-(25-26)Nb(at%) alloy.

Claim 19 (withdrawn): A titanium composite part, according to claim 12, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united, prior to melting, by a welding procedure.

Claim 20 (withdrawn): A titanium composite part, according to claim 12, characterised in that the reinforcement material, which may be a single piece or divided up, and the consumable ingot are united, prior to melting, by mechanical means.

Claim 21 (withdrawn): A titanium composite part, according to claim 12, characterised in that, prior to melting, the reinforcement material, which may be a single piece or divided up, is inserted into one or more holes made in the consumable ingot.

Claim 22 (withdrawn): A titanium composite part, according to claim 12, characterised in that the melting is done by means of the vacuum induction melting and/or vacuum electric arc melting method.

Claim 23 (withdrawn): A titanium composite part, according to claim 12, characterised in that the casting in the moulds is done by means of a centrifuging or gravity

filling method.